College Algebra Exit Competencies--DRAFT February 4, 2008

The following topics are generally covered by all institutions.	Exit Competencies
Functions and their Graphs	Understand the concepts of functions and be able to apply the properties of functions and their graphs.
Linear Functions and Slope	Understand the relationship between linear functions and straight lines and be able to apply such knowledge.
Piecewise-defined Functions	Understand the concept of piecewise-defined functions and be able to translate this knowledge to their properties and graphs.
Transformations of Functions	Understand the concept of transformation (e.g., shifting, reflecting, stretching, shrinking) of functions and be able to recognize and apply such knowledge when graphing functions.
Combining Functions	Understand the concept of combining functions and be able to perform these operations and recognize the resulted functions and their properties.
Inverse Functions	Understand the invertibility of functions and the relationship between functions inverse to each other, and be able to determine inverse functions when appropriate.
Linear and Rational Equations	Understand the meaning of solutions to linear and rational equations and be able to solve such equations whenever appropriate.
Models and Applications	Apply the acquired understanding and knowledge of functions to model appropriate real-world situations and draw mathematical conclusions.
Complex Numbers	Understand the concept of complex numbers and be able to perform operations involving them.
Quadratic Equations	Understand the meaning of solutions to quadratics equations and be able to solve such equations.
Other Types of Equations	Understand and recognize other types of equations and be able to apply previously acquired knowledge to solve such equations whenever appropriate.
Linear/Absolute Value Inequalities	Understand the meaning of solutions to linear and absolute value inequalities and be able to solve such inequalities whenever appropriate.
Quadratic Functions	Understand the relationship between quadratic functions and parabolas, and able to connect such knowledge to quadratics equations.
Polynomial Functions and Graphs	Understand the properties and graphs of polynomial functions and be able to perform basic operations involving polynomials.
Remainder and Factor Theorems	Understand the meaning of the Remainder Theorem and its application to evaluating polynomial functions. Understand the meaning of the Factor Theorem and its application to solving polynomial equations.
Zeros of Polynomial Functions	Understand the meaning of zeros of polynomial functions and their connection to the graphs of these functions.
Fundamental Theorem of Algebra	Understand the importance of the Fundamental Theorem of Algebra, its application to polynomial equations, and its connection to complex numbers.
Rational Functions and Graphs	Understand the properties and graphs of rational functions and be able to generate appropriate information, including asymptotes.

Polynomial/Rational Inequalities	Understand the meaning of solutions to polynomial and rational inequalities and be able to solve such inequalities whenever appropriate.
Exponential Functions	Understand the properties and graphs of exponential functions and be able to evaluate and graph such functions.
Logarithmic Functions	Understand the relationship between logarithmic functions and exponential functions and be able to evaluate and graph such functions.
Properties of Logarithms	Understand the properties of logarithms and their relationship to exponentials. Be able to perform operations on logarithms.
Exponential/Logarithmic Equations	Understand the meaning of solutions to exponential and logarithmic equations and be able to apply the inverse relationship between exponentials and logarithms to equations involving them whenever appropriate.
Exponential Growth and Decay	Understand the meaning of exponential growth and decay and apply the knowledge of exponential and logarithmic functions model two applications.
Compound Interest	Understand the meaning of compound interest and apply the knowledge of exponential functions to model this application.
The following topics are elective topics. Coverage varies from institution to institution.	
Variation	Understand the underlining principle of variation and how it is used to model many applications.
Systems of Linear Equations	Understand the meaning of solutions to linear systems of equations and be able to use effective ways to find and express possible solutions.
Systems of Nonlinear Equations	Understand the meaning of solutions to systems of nonlinear equations and be able to use effective ways to find and express possible solutions.
Matrices Solutions to Linear systems	Understand the concepts of matrices and their inverses (if exist), matrix operations, determinants, and be able to perform required computations. Understand how matrices are used to model and solve system of linear equations and be able to perform required appropriate computations.
Conic Sections	Understand the properties and graphs of parabolas, ellipses, and/or hyperbolas and be able to perform basic related algebraic/graphing operations.
Sequences/Series	Understand the concepts of sequences and series (including the arithmetic and geometric cases) and their applications. Be able to perform basic related algebraic tasks.